

Interpretative ingredients: formulating art and natural history in early modern Brazil

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Introduction

In this article I look at two early modern texts that pertain to the natural history of Brazil and its usage for medicinal purposes. These texts present an informative contrast in terms of information density and organization, raising important methodological considerations about the ways that inventories and catalogues become sources for colonial scholarship in general and art history in particular.

Willem Piso and Georg Marcgraf's *Natural History of Brazil* was first published in Latin by Franciscus Hackius in Leiden and Lodewijk Elzevir in Amsterdam in 1648. Known to scholars as the first published natural history of Brazil and a pioneering work on tropical medicine, this text was, like many early modern scientific projects, a collaborative endeavor and, in this particular case, a product of Prince Johan Maurits of Nassau's Dutch colonial enterprise in northern Brazil between 1630-54. Authored by the Dutch physician Willem Piso and the German naturalist Georg Marcgraf, the book was edited by the Dutch geographer Joannes de Laet, produced under commission from Johan Maurits, and likely illustrated by the court painter Albert Eckhout, along with other unknown artists commissioned for the Maurits expedition.¹ Its title page has become emblematic for art historians and historians of science alike as a pictorial entry point into the vast world of botanical, zoological, medicinal, astronomical, and ethnographic knowledge of seventeenth-century Brazil (Fig. 1).²

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¹ Quentin Buvelot, ed, *Albert Eckhout: A Dutch Artist in Brazil*, The Hague and Zwolle: Royal Cabinet of Paintings Mauritshuis; Waanders, 2004, 132-133; and Rebecca Parker Brien, 'George Marcgraf (1610- c.1644) A German Cartographer, Astronomer, and Naturalist-Illustrator in Colonial Dutch Brazil', *Itinerario*, 25, 2001, 85-122.

² Willem Piso and Georg Marcgraf, *Historia naturalis Brasiliae: Auspicio et beneficio illustriss. I. Mauriti com. Nassau illius provinciae et maris summi praefecti adornata: in qua non tantum plantae et animalia, sed et indigenarum morbi, ingenia et mores describuntur et iconibus supra quingentas illustrantur*, Lugdun, Batavorum: Apud Franciscum Hackium, et Amstelodami, apud Lud. Elzevirium, 1648. Published as a single volume, the *Natural History* has two separately paginated sections. The first, on medicine, was written by Piso and is divided into four



Figure 1 Frontispiece. Georg Margraf and Willem Piso, *Historia naturalis Brasiliae* Lugdun, Batavorum: Apud Franciscum Hackium, et Amstelodami, apud Lud. Elzevirium, 1648. Peter H. Raven Library, Missouri Botanical Garden, St. Louis, MO, USA.

The hand-colored, engraved title page of the *Natural History* literally sets the stage for the content within the volume, presenting the reader with a colonnade-like series of trees perspectively receding into the distance, an entryway both into indigenous Brazil and into the treatise itself. This triumphal alley is comprised of fruiting trees of various species, upon which climb an assortment of Brazilian fauna, including a sloth, various kinds of parrots and macaws, and an exceedingly long snake, perhaps a boa. The orderly path leads the viewer inward toward a scene of dancing figures, naked except for a few feathers on their heads, who perform in

chapters; Margraf authored the second section on the natural history of Brazil, which is divided into a further eight chapters, with an appendix on the indigenous inhabitants of Brazil and Chile. The second edition of the *Natural History*, *De Indiae utriusque re naturali et medica* XIV, Amstelaed., Lugd., et Dan., Elzevirij, 1658, was translated into Portuguese and published as: Guilherme Piso, *História natural e médica da Índia Ocidental: em cinco livros*, traduzida e anotada por Mário Lôbo Leal; revista por Felisberto Carneiro e Eduardo Rodrigues; escôço bibliográfico de José Honório Rodrigues, Rio de Janeiro: Departamento de Imprensa Nacional, 1957.

front of the rounded architecture of an indigenous *maloca*, usually constructed of wood and palm. An Adam and Eve-like indigenous couple gracefully pose in the foreground, surrounded by plants — herbaceous, fruiting, and arborous — as well as birds, fish, and mammals that offer an idea of the topics of the books into which the treatise is divided. The bodies are idealized, rather than rendered with an intention towards physiognomic accuracy: figures posing in classicizing *contrapposto* that are ‘nativized’ for viewers. The man on the left, for example, holds ethnographically accurate weapons — a small war club, as well as bows and arrows — of the Tupi communities of coastal Brazil; the woman holds in her right hand a branch of a cashew tree, displaying the colorful cashew ‘apples’ that were still a novelty for European audiences. Other identifiable fruits, such as the pineapple growing beside the man and coconuts hanging prominently from a palm, as well as medicinal plants and sea creatures pouring from the cornucopia held by the river god at the bottom of the page, offer readers an index of the botanical and zoological bounty — the commodifiable wealth — of Brazil that is catalogued in the treatise, further exemplified by the lush swag of flowers and fruit at the top, held by two New World monkeys.

A second, cartouche-like swag of cloth framed by the arms of the monkeys contains the title of the books, an acknowledgment of Nassau’s patronage, and an indication of the subject matter, while the shell below the river god identifies the publishers. Beyond the novelty of certain iconographic details of the scene — such as the marmoset in the right foreground, the sloth, and *caju* fruit — the title page is not especially innovative in how it presents information to an early modern Northern European audience. It is formulaic, but this formulaic strategy is precisely what gives the title page its power, as it lays out a knowledge system — a structure for localizing nature, utilizing nature, commodifying nature, and bringing it back to Europe — akin to the institutional power structure — Maurits’ patronage, the publishing houses of Leiden and Amsterdam — by which that knowledge is disseminated.³

Although very different in appearance, the introductory image found in a Jesuit medical manuscript of 1766 now housed in Rome — the *Collection of various recipes of unique secrets from the most important apothecaries of our Society in Portugal, India, Macao, and Brazil* — also speaks to the institutional context of a very different text (Fig. 2).⁴ The Piso and Marcgraf title page resembles the processional routes of

³ The formulaic nature of the title page may be seen by comparing it, for example, with the Theodor de Bry title page of Girolamo Benzoni, *America pars quarta*, ed, Theodor de Bry & sons, Frankfurt: M. Becker, 1594.

⁴ *Collecção de varias receitas de segredos particulares des principaes boticas da nossa companhia de Portugal, da India, de Macao e do Brasil compostas e experimentadas pelos melhores medicos e Boticarios mais celebres que tem havido nestas partes aumentada com alguns indices, e noticias muito curiosas, e necessarias para a boa direcção e acerto contra as enfermidades, En Roma, An.M.DCC.LXVI, com todas as licenças necessarias. Archivum Romanum Societatis Iesu (ARSI), Opp. NN. 17.*

contemporaneous royal entries but in New World guise, while the other title page depicts a disembodied and pulsating sacred heart, wrapped in a crown of thorns, and surrounded by cloud-borne seraphim, a classic Jesuit emblem.⁵ However, the



Figure 2 Prologue Image, Opp. NN. 17. *Collecção de varias receitas de segredos particulares des principaes boticas da nossa companhia de Portugal, da India, de Macao e do Brasil...*, Roma, An.M.DCC.LXVI. Rome, Archivum Romanum Societatis Iesu.

comparison bears contemplation. The *Collection of various recipes* was compiled over a hundred years after Piso and Marcgraf's treatise and offers a specifically internal Jesuit missionary audience — not the more general learned and elite European audience for the Dutch *Natural History* — access to a 603-page hand-written collection of 'secret' recipes for remedies concocted by Jesuit pharmacists. These recipes were developed in Jesuit apothecaries located within the jurisdiction of the far-flung global Portuguese Assistancy, the Portuguese-language branch of the Order with an influential presence in Portugal, India, Macao and Brazil during the early modern period. As their accompanying commentaries make clear, the authors of the recipes contained in the book hoped that they would be read and used only by other Jesuit pharmacists.

Facing the first page of the manuscript's prologue, the Jesuit watercolor shows two angels praying before the fiery Sacred Heart of Jesus, a common symbol

⁵ See for example the triumphal colonnade from the Archduke Ernest of Austria's ceremonial entry into Antwerp in 1594: 'Triumphal Colonnade of the Fuggers'. Jean Boch, *Descriptio publicae gratulationis, spectacularum et ludorum, in adventu Sereniss[imi] Principis Ernesti Archiducis Austriae*, Antwerp: Johannes Moretus, 1595, 125.

for the Society of Jesus as a religious institution, especially prevalent in the Sacred Heart cult throughout New Spain, and thus within colonial visual culture writ large.⁶ Ostensibly the locus of Jesuit devotion, the Sacred Heart also functioned as a



Figure 3 Title page. Opp. NN. 17. *Collecção de varias receitas de segredos particulares des principaes boticas da nossa companhia de Portugal, da India, de Macao e do Brasil...*, Roma, An.M.DCC.LXVI. Rome, Archivum Romanum Societatis Iesu.

metonym for the order as an institution as it was emblazoned on Jesuit churches, statuary, and even title pages of volumes such as the *Collection of various recipes* (Fig. 3). Here we see the sacred heart, replete with its prominent blood vessels, glowing corona, and crown of thorns, this time emblazoned like a publisher's mark above the city and date of the manuscript, adding a sacral and institutional dimension to this hefty tome of medical recipes for Jesuit eyes only. Furthermore, the sacred heart emblem rhetorically ecclesiasticizes the information contained within its pages, inserting the recipe book into a larger Jesuit intellectual apparatus that was directed towards the greater glorification of Christ.

⁶ Lauren Kilroy, 'A Burning Heart Can Save Your Soul: Images of the Sacred Heart in New Spain', *Death and Afterlife in the Early Modern Hispanic World*, eds, John Beusterien and Constance Cortez, *Hispanic Issues Online*, 7, Fall 2010, 106-125.
<http://hispanicissues.unm.edu/DeathandAfterlife.html>.

These two images serve as visual portals into their respective books, each in their own way showcasing the institutional embedding of the colonial catalogues they contain. Despite this similarity of function, there are important distinctions to be drawn. The title page of the *Natural History* rather grandiosely presents a published book, intended to be both disseminated and read by a larger (if still limited) Latin-literate reading public. The *Sacred Heart*, in contrast, uses an emblematic image much like a trade brand to introduce a vernacular manuscript of economically valuable trade secrets, meant for the narrow readership of Jesuit pharmacists and medical practitioners.

Far more striking, however, are the differences we encounter between the two books once we delve into the texts. To be clear from the outset, these two works belong to very different genres. Though both are in some sense ‘catalogues’ in that they aspire to present systematic listings of their subjects, they clearly do not espouse the same systems of categorization. While the Dutch work is divided into sets of six and eight ‘books’ that describe significant examples of Brazil’s nature sequentially from plants to humans (an inversion of the sequence within Pliny’s *Natural History*, AD 77-79), the *Collection of various recipes* sits at the juncture of the genres of early-modern books of secrets and official pharmacopoeias.⁷ Both survey Brazil’s natural resources with medicinal uses in mind, but there is a profound difference in information density between the two: Piso and Marcgraf, rich in narrative description, supply numerous references to authoritative sources and abundantly, even lavishly illustrate the text; the Jesuit recipe book is a sparse, even laconic volume that with few exceptions provides only lists of ingredients, offers very brief instructions for compounding those ingredients into salves and tinctures, and has but a single other illustration, a diagram of the human circulatory system appended to the end of the manuscript. The distinction might in fact better be explained with reference to Piso and Marcgraf as construing Brazil’s *naturalia* as sources of—or even forms of—usable, contextualized knowledge. In contrast, the *Collection of various recipes* treats them as standardized, interchangeable elements that do not carry significance in and of themselves, in other words, as information.⁸ Since these differences arise from circumstances that determined not just the production and use of the two books, but also the perception and reception of Brazil and its natural products, this has methodological implications for how early modern art historians might use these, and similar works, as sources.

In the terms of this volume of essays, we might also understand this distinction to be akin to the categories of the catalogue (Piso and Marcgraf) and the inventory (*Collection of various recipes*) that Freddolini and Helmreich explicate in their introduction. The *Collection of various recipes* provides lists of ingredients that correspond spatially to the cabinets and containers within a pharmacy, though it is

⁷ Elaine Leong and Alisha Rankin, eds, *Secrets and knowledge in medicine and science, 1500-1800*, Farnham and Burlington: Ashgate, 2011.

⁸ This ‘data tier’ distinction is charted out by organizational theorist Russell Ackoff, ‘From Data to Wisdom’, *Journal of Applied Systems Analysis*, 16, 1989, 3-9.

important to note that they do not *per se* constitute the inventory of any actual or ideal pharmacy. Using the list from a particular recipe, a pharmacist could quickly locate the necessary simples among the jars and drawers of the shop and then follow the instructions to mix the medicinal compound. The *Natural History*, in contrast, does not correspond to any physical space, including the natural expanses of Brazil itself. It presents a selection, a curation, of Brazil's plants and animals and orders them according to the simple taxonomy of plants, fish, insects, etc.

The recipes in the *Collection* were compiled by Jesuit missionaries concerned with conveying the practical details of compounding medicaments for use and, to no small extent, profit. The *Collection* also exemplifies important aspects of the peculiar authorial status of inventories and the implicit collectivity of the manuscript enterprise. Many individual recipes are attributed to different Jesuit pharmacists by name either in the title of the recipe or within the recipe itself, but the compiler of the manuscript remains anonymous. The manuscript is a collaborative product of the transnational Jesuit enterprise, even if assembled by hand in Rome. Though written in a uniform, eighteenth-century script, with a standardized set of abbreviations and frequent interpolations in Italian, the individual recipes reveal a provenance from missionary letters sent from across the Portuguese Assistancy over a considerable period of time. Once gathered together in Rome, a Jesuit priest there undertook the compilation into the current manuscript. The dating and contextualization of recipes to their points of origin requires additional research into the particular priests at particular mission posts in the Assistancy.

The *Natural History*, by contrast, was produced in a different epistemological context, and specifically within the auspices of a cultural enterprise invested in detailing the local world in its material and aesthetic dimensions. Since its selected contents stand in for actual specimens from Dutch Brazil, not for by-products of them, this catalogue includes both illustrations and extensive text describing the originals. The authority of the *Natural History* in fact rests on the identification of the two named authors as well as their princely patron.

Theoretical approaches from sociology, media studies, and information management that seek to understand distinctions among levels of knowledge and their economic and social implications prove especially valuable when considering early modern catalogues and their utility for art-historical writing.⁹ I would argue that colonial situations such as that of Brazil present a model for thinking through the possibilities of interpretation when textual information density *in general* is low. Indigenous cultures such as those in early modern Brazil were oral and performative and lacked writing systems so that European archival sources

⁹ Daniel Bell, 'The social framework of the information society', in Michael L. Dertouzos and Joel Moses, eds, *The Computer Age: A Twenty-Year Review*, Cambridge, MA: MIT Press, 1979, 163-211; Daniel Bell, 'Gutenberg and the computer: on information, knowledge and other distinctions', *Encounter*, 64, May 1985, 15-20; and A. S. Duff, 'Daniel Bell's theory of the information society', *Journal of Information Science*, 24: 6, 1998, 373-393.

detailing indigenous cosmologies are fragmentary at best, a situation that often arises when studying inventories and catalogues produced for purposes other than scholarship (e.g. a probate inventory). This perhaps urges us, as historians of all stripes, to parse out the value of such texts all the more and possibly triangulate them with other kinds of sources and traditions, be they material, performative, or oral.

Our discipline, and the same is true of any historical field, of course, gravitates to images and written sources that contain the greatest density of available knowledge, since such sources represent the largest possible return for the historian's time and labor, but this runs certain risks. Piso and Marcgraf's *Natural History*, with its rich text and lavish illustrations contextualizing botany, zoology, ethnography, and even linguistics, is a scholarly treasure trove for both the historian of art and of science, codicologically akin to both the illustrated art catalogue and field guide. The *Collection of various recipes*, with its two meager images, is not the standard fare of the art historian but rather of historians of medicine, while its status as a 'collection of secrets' posits a more circumscribed audience. In essence, it is a practical text that, as I discuss below, correlates specifically to the ordered space of the apothecary's workshop. The natural philosophical, medicinal, and linguistic knowledge of particular plants found in the *Natural History* is disciplinarily redirected and distilled down in the pharmacological manuscript to lists of ingredients with standardized Portuguese names and standardized processes for producing the correct Jesuit formulation. As I will show, what in the first book are understood as distinctive and semantically charged plants, animals, and minerals have become de-natured, de-contextualized, and reduced to simple lists and labels, to mere information in the manuscript. This essay lays out the difference in informational density in the two texts to highlight the importance of both genres of catalogues for art-historical work in early modern Brazil.

Natural History of Brazil, 1648

Piso and Marcgraf's *Natural History of Brazil* is one of the most significant intellectual products of Johan Maurits' colonial occupation and explorations of northeastern Brazil, and for the art historian it is not only one of the key early modern reference books for the natural environment of northeastern Brazil — medicine, flora and fauna, indigenous Brazilian ethnographies, craft practices, and language — but also a magnificent work of art. With 533 illustrations, the published book provides the most detailed compendium of flora and fauna we have for the period. Carl Linnaeus (1707-78) used the work as a source for his names and classificatory systems.¹⁰ Under the auspices of the West India Company, Maurits explicitly commissioned

¹⁰ Britt Dam, 'Transcriptions and Descriptions of Exotic Fauna in Barleaus' *Rerum per Octennium* and de Laet's *Historia Natural Brasiliae*', in Harold J. Cook and Sven Dupré, eds, *Translating Knowledge in the Early Modern Low Countries*, Münster: LIT Verlag, 2012, 341.

works of medicine and natural history, which appear to have been important priorities for the Dutch prince, as was the elaboration of his residency, gardens, and zoo in Brazil. As Júnia Ferreira Furtado has shown, the Portuguese Crown discouraged publishing and circulating information pertaining to Brazil in an effort to thwart the economic ambitions of other European powers in the region, so Maurits' decision to commission major publications about Brazil constituted a bold political act that paralleled his territorial occupation of what, according to the Treaty of Tordesillas of 1494, were indisputably Portuguese lands.¹¹ The *Natural History* was also very much a product of the scientific culture of both the Hispanic and Northern European academies; it speaks to early modern scientific traditions and translations of classical texts, and to innovative research in the natural sciences across Europe.

Piso and Marcgraf's *Natural History* celebrated the governorship of Maurits through publishing the knowledge obtained during his administration; it is a product of the intellectual investigations and expeditions that he sponsored, and both an index of and part of the collections he acquired. As Harold Cook has discussed, the book project was financially underwritten by Maurits and compiled after his return to the Netherlands; nothing comparable in terms of scientific and artist sponsorship occurred in other West India Company territories.¹² As a catalogue of the medical and natural history of a particular colonial region, the book is comparable to and informed by contemporaneous texts by physicians and botanists such as Jacobus Bontius' *De medicina indorum* (1642) on the East Indies; and Francisco Hernández's circulated, but not yet fully published, natural history of New Spain for Philip II (1649-51).¹³

Within the scholarship on the art and science of seventeenth-century Dutch Brazil, the *Natural History* has become a canonical work of the visual culture of Dutch Brazil, on par with the paintings of Albert Eckhout and Frans Post.¹⁴ Piso was a working physician in Brazil, based in Recife. His section of the volume, devoted to medicinal matters, encompasses the first four 'books' on the medicines of Brazil: the air, water, and geography of Brazil; its endemic diseases; Brazilian poisons and their antidotes; and finally, medicinal simples (individual ingredients) derived from local

¹¹ Júnia Ferreira Furtado, 'Tropical Empiricism: Making Medical Knowledge in Colonial Brazil', in James Delbourgo and Nicholas May, eds, *Science and Empire in the Atlantic World*, London: Routledge, 127-151.

¹² Harold J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age*, New Haven: Yale University Press, 2007, 214-215.

¹³ Cook, *Matters of Exchange*, 217-218. Cook discusses how De Laet, the editor of the *Natural History*, obtained information from unpublished sources.

¹⁴ For classic studies in English see P. J. P. Whitehead and M. Boeseman, *A portrait of Dutch 17th century Brazil: Animals, plants and people by the artists of Johann Maurits of Nassau*, Amsterdam: North-Holland Publishing Company, 1989; and Svetlana Alpers, 'The Mapping Impulse in Dutch Art', in David Woodward, ed, *Art and Cartography: Six Historical Essays*, Chicago: University of Chicago Press, 1987, 51-96.

plants. As Cook has suggested, Piso's information was likely garnered from local informants rather than from personal field experience in Brazil.¹⁵ Marcgraf's contribution is much more extensive, although he officially served as Piso's assistant; his text is divided into eight 'books': herbs, fruiting plants, trees, fish, birds, quadrupeds and serpents, insects, and the geography and meteorology of the region. The three books on plants correspond to simple formal qualities, and the books on animals to whether they are aquatic, avian, land-dwelling vertebrates or invertebrates. The spatial ordering within the book is abstracted, corresponding neither to the landscapes of Brazil nor to any known collection of Brazilian *naturalia*. Even within individual entries, only vague indications of where one might find living specimens is given: 'near Paraíba' or 'at the furthest reaches of the forest'.

Unlike the *Collection of various recipes*, the *Natural History* is replete with visual imagery, with over 500 woodcuts of individual organisms many of which were based directly on collected specimens and which help to distinguish varieties of a given species, such as the numerous types of passion fruit. As Whitehead has carefully documented, the woodcuts in Piso and Marcgraf, and the drawings upon which they were based, were extensively reused in Europe in a wide variety of media.

The information contexts of the entries for various species of passionflower (*murucuya*) can provide insight into the organization of entries and structure of the book project as a whole.¹⁶ The first entry for passion fruit appears in Piso's fourth book, listing medicinal simples, as in Chapter LXXIII, and details the different species of *murucuya*, with its various vernaculars, in this case indigenous names in the Tupi cultural environment: *mixira*, *peroba*, *piruna*, *ternacuja*, and *uná*.¹⁷ This attention to the philological aspects of the plant speaks to one of the functions of the book project as a whole: to contextualize Brazil's nature within a particular socio-cultural and linguistic terrain. The narrative goes on to explain that the passionflower grows during all times of the year, that it produces flowers called 'Christ's passion', and that the coloration of the interior of the flowers produces an iridescence in a broad range of cerulean purples, blooming fully three hours after dawn. The fruits, though, are produced primarily in the rainy, summer months. The entry goes on to describe the particular properties of the fruit, especially the black seeds contained within the fruit, and the delicious acidity of the delicate flesh inside, which leads Piso to observe that he finds surprising the remarks of previous authors (including the Spanish physician Nicolas Monardes, who published the first description of the passionflower) that the flesh is 'insipid'.¹⁸ The fruit pulp can be used against fevers, and can serve as a substitute for 'cordial syrup', having various remedies, including numbing the teeth, restoring the body from heat exhaustion

¹⁵ Cook, *Matters of Exchange*, 216-217.

¹⁶ For an online hand-colored edition of the *Historia Naturalis* see: <http://www.botanicus.org/title/b12081164>.

¹⁷ Piso and Marcgraf, *Historia Naturalis*, 106-107.

¹⁸ Piso and Marcgraf, *Historia Naturalis*, 70-73.

and thirst, awakening the appetite, and guarding against stomach pains. The remainder of the entry quite exhaustively describes the various species of passionflowers, and the particular forms of each of their flowers, leaves, fruit dimensions, and so forth. The entry on passion fruit describes species laid out for the reader to identify and comprehend. In the accompanying woodcut illustration, the plant is reduced to its most distinctive features: the passionflower itself, with its hairy filaments, three prominent stamens and five anthers; the five-lobed leaf; the rounded and slightly irregularly surfaced fruit; and the wavy tendrils, said to resemble the whips used in the flagellation of Christ, that allow the *passiflora* vine to climb (Fig. 4). Marcgraf's more extensive section on the passion fruit conveys much the same information, adding detailed descriptions and further illustrations to help distinguish several varieties of *passiflora*.¹⁹

Passionflowers become distinctive features of the iconography of Dutch Brazil, finding their way into various paintings, including floral panels by the Jesuit artist Daniël Seghers and large-scale ethnographic tableaux of Brazilian 'typologies',



Figure 4 'Passion fruit'. Willem Piso and Georg Margraf, *Historia naturalis Brasiliae...*, Lugdun, Batavorum: Apud Franciscum Hackium, et Amstelodami, apud Lud. Elzevirium, 1648, I Piso: 106, II Marcgraf: 70. Peter H. Raven Library, Missouri Botanical Garden, St. Louis, MO, USA.

¹⁹ Piso and Marcgraf, *Historia Naturalis*, 70-73.

such as Albert Eckhout's oil on canvas *Mameluca* of 1641, likely painted for the large, central hall of the Vrijburg Palace, Maurits' Brazilian residence (Fig. 5).²⁰ The eroticizing nature of Eckhout's figure pairs has been one of the most transfixing elements of these paintings, not least because they meld aspects of different genres of seventeenth-century Dutch painting. The *Mameluca* figure lifts her white gown with one hand, while she balances a basket of flowers — including a prominently displayed large, white *passiflora* — with the other. Standing in an arm akimbo pose beneath a fruit-laden *caju* tree, and with two characteristically Brazilian guinea pigs at her feet, the woman gazes provocatively at the viewer, an index of the fecundity



Figure 5 Albert Eckhout, *Mameluca*, 1641, o/c, 271 x 170 cm. The National Museum of Denmark, Ethnographic Collections.

²⁰ It is not known for certain where these eight ethnographic paintings were designed to hang, but many scholars suggest Maurits' Brazilian residence. See Whitehead, *A portrait*, 78; Peter Mason, 'Eight Large Pictures with East and West Indian Persons', in Barbara Berlowics and others, eds, *Albert Eckhout Volto ao Brasil, 1644-2002 (Albert Eckhout Returns to Brazil, 1644-2002)*, Copenhagen: Nationalmuseet, 2002, 147-154; and Rebecca Parker Brien, *Visions of Savage Paradise: Albert Eckhout, Court Painter in Colonial Dutch Brazil*, Amsterdam: Amsterdam University Press, 2007.

of Brazil and its natural bounty, while in the distance a broad expanse of level ground suggests the possibilities for Dutch agricultural development.²¹

With Maurits himself as the likely intended viewer of the painting, and considering Eckhout's role in producing images for the *Natural History*, the information contained within Piso and Marcgraf's treatise would certainly have been relevant to the understanding of this image. Not only do the authors account for the nature and uses of the plants and animals to be seen in this and Eckhout's other paintings — passionflowers, dangling cashew fruits, and guinea pigs included — but the volume ends with an accounting of the various castes to be found in Brazil, including the *mameluca* woman of the painting, who is a product of a European father and a Brazilian mother. The painting thus advertises the larger message of Maurits' Brazilian venture, as well as Piso and Marcgraf's treatise, which is the economic and colonial value of Brazil's territory, natural bounty, and inhabitants.

Collection of various recipes of unique secrets, 1766

The *Collection of various recipes of unique secrets from the most important apothecaries of our Society in Portugal, India, Macao, and Brazil* was a manuscript compiled by an unknown Jesuit functionary in 1766.²² Now housed in the Jesuit Archives in Rome, this hefty hand-written volume of over six hundred pages details missionary recipes for medicaments for common diseases found in the early-modern Lusophone missions, where the sale of medications served as one of the only permissible profit-making endeavors because such acts could be easily aligned with 'healing' local souls with Christianity.²³ Apothecaries were established for major missions in Brazil as way of financing the evangelical dimensions of the Jesuit organization. Drugs, and the global drug trade, were crucial to the smooth running of the Order's presence in Brazil, as in other sites of the Portuguese Assistancy.

The *Collection of various recipes* is also a byproduct of the institutional and intellectual framework of the Jesuit Order and its internal informational system. The

²¹ On the arm-akimbo pose see Joaneath Spicer, 'The Renaissance Elbow', in Jan Bremer and Herman Roodenburg, eds, *A Cultural History of Gesture from Antiquity to the Present Day*, Cambridge: Polity Press, 1991, 84-128.

²² For discussion of the manuscript remains S. J. Serafim de Leite, *Artes e ofícios dos jesuítas no Brasil (1549-1760)*, Lisboa: Edições Brotéria, Livros de Portugal, 1953, 87-96; Ana Maria Amaro, *Introdução da medicina ocidental em Macao e as receitas de segredo da botica do Colégio de São Paulo*, Macau: Instituto Cultural de Macau, 1992; Sabine Anagnostou, 'Mission und Heilunde. Das Heilmittelversorgungssystem der Jesuiten in den Missionen Spanisch-Amerikas', *Neue Zeitschrift für Missionswissenschaft. Nouvelle Revue de science missionnaire*, 57: 4, 2001, 241-260; and Timothy Walker, 'The Medicines Trade in the Portuguese Atlantic World: Acquisition and Dissemination of Healing Knowledge from Brazil (c. 1580-1800)', *Social History of Medicine*, 26: 3, 2013, 403-431.

²³ Alden, *The Making*, 338.

Society of Jesus was a corporation perhaps unparalleled in the early modern period in its intricate administrative and geographical expanse.²⁴ Because of the hierarchical and language-based structure of the institution, the Jesuits could function as a cohesive unit despite their geographic breadth. The Society of Jesus was one of many religious orders — others including the Franciscans, Benedictines, and Carmelites — present in Portuguese America expressly devoted to the spiritual conversion of the local Native Amerindian populations. The Jesuits referred to various native Brazilian populations not as Tupi or a variant thereof, but homogenized as ‘Brasis’, or ‘brasilense’, deriving ultimately from the appellation given to the territory because it was the source of brazilwood dye.²⁵

Jesuit decision making for Brazil (as in all provinces) involved a sequence of chain-like links: the Jesuit missionaries in Brazil reported to Rectors in Brazil, who answered to Father Provincials in Brazil and Visitors living in Europe (who came to Brazil every few years as a ‘cross check’ mechanism to evaluate the Provincial’s work); in turn the Father Provincials and Visitors received their orders from the Father General in Rome, who reported directly to the Congregation in Rome. Power relations between Brazil and Rome were thus uni-directional, as was the flow of information, since the Order was in principle tightly organized into a centralized command structure reporting to Rome. In 1558, four ‘Assistancies’ were assigned more or less along linguistic lines to cover the geographic expanse of Europe and their missions abroad, and each assistant was responsible as a liaison between a particular Assistancy and the Generalate.²⁶ Within each of these Assistancies there existed a range of territorial ‘provinces’, corresponding very roughly, in the case of Europe, to the old provinces of the Roman Empire. No one man or position had independent authority within the structure and all ultimately reported to the Father General of the Society. For the purposes of this manuscript, I speak specifically of the functions of Lusitaniae, or the Portuguese Assistancy. Beyond Portugal and Brazil, the Portuguese Assistancy also included the Portuguese *Estado da India* (Mughal court of the north, coastal centers of Goa, Bassein, Bay of Cambay, Cochin,

²⁴ Stephen J. Harris, ‘Long-Distance Corporations, Big Sciences, and the Geography of Knowledge’, *Configurations*, 6, 1998, 269-304; and Dauril Alden, *The Making of an Enterprise: The Society of Jesus in Portugal, its Empire, and Beyond*, Stanford: Stanford University Press, 1996, 668-669.

²⁵ For a summation of the long etymological history of the name ‘Brazil’, originally a Celtic word for the mineral called ‘breazail’ (meaning red), see the first chapter of Eduardo Bueno and Ana Roquero, *Pau-Brasil*, São Paulo: Axis Mundi, 2002, 29.

²⁶ The Assistancies of the Old Society (pre-suppression) included: Italiae, Lusitaniae, Hispaniae, and Germaniae. The ‘German Assistancy’ included not only the German-speaking lands, but also the English, Flemish, and Belgian provinces in the northwest and the Polish, Bohemian, and Austrian (now Hungary, Croatia, and Serbia) provinces to the east and southeast. The Jesuit ‘linguistic’ divisions were thus fairly flexible. The ‘Polish Assistancy’ was split from the ‘German’ and this included Greater and Little Poland, Lithuania, and Muscovy in 1755. Already, in 1608, Galliae had been added.

and Quilon); the Persian Gulf (Ormuz); portions of Africa (Ethiopia, Mozambique, Kongo, and Angola); and Asia (China, Japan, Malacca, and the Moluccas).

However, the language-based Assistancies functioned as quasi-autonomous units that in certain arenas acted independently of Rome. Jesuit missionary letters were dispersed widely around the Jesuit world in various ways, attesting to the possibilities of the provincialization of Rome.²⁷ This has significance for the recipe book in terms of communication flow. As Timothy Walker has discussed, in early modern Lisbon, two of the most important pharmacies of the city were under Jesuit control and served as a hub for overseas apothecaries.²⁸ This means that the *Collection of various recipes* was a book of global dimensions. It needed to convey standardized information that could just as easily be read in a mission in Goa or Bahia as one in Lisbon or Rome.

The recipe section of the manuscript is organized alphabetically and classed by title, with the first word of the title denoting the kind of compound, for example *agoa* (distillation), *balsamo* (unguent), and *conserva* (sugar-based preserves). With few exceptions, the recipes are presented in a standardized format, consistent with that of European pharmacopoeias, such as the famed *Pharmacopoeia Augustana*.²⁹ The name of the medication is followed by a credit line identifying the source. Authorship of most of the recipes is assigned either to particular mission pharmacies — such as *Coral Syrup from the Pharmacy of the College of Bahia* — or to particular individuals, who may or may not be members of the order, such as *Tincture of Coral from Brother Apothecary Manoel de Carvalho*, or *Anti-venereal distillation by Madame Fouquet*.³⁰ This is followed by a list of measured ingredients, most of which are identified only by a common Portuguese name, though occasionally an indigenous Tupi term is used. Measurements are given by weight. Next come brief instructions about how to compound the ingredients, signaled by the header ‘make this in the following way’.³¹ Each recipe then concludes with a short summary of its medicinal indications (*virtudes*) and its appropriate dosage.

The utilitarian nature of the *Collection of various recipes* is confirmed by a series of appendices and indices that take up the final 126 pages of the manuscript. These include an alphabetical list of useful information about individual ingredients, such as synonyms, equivalences, and dosages; a listing of ingredients by desired effects, such as antivenoms, puratives and purgatives; groups of

²⁷ For a discussion of the ‘decentralization’ of European centers in relation to the Jesuit’s missionary activity see Ines G. Zupanov, *Missionary Tropics: The Catholic Frontier in India, 16th-17th Centuries*, Ann Arbor: University of Michigan Press, 2005, 4.

²⁸ Walker, ‘The Medicines Trade’, 414.

²⁹ Adolpho Occo, *Pharmacopoeia Seu Medicamentarium pro Rep. Augustana*, Augsburg: Georg Willer, 1573. The *Pharmacopoeia Augustana*, as it is commonly called, was written by Occo in 1564 and officially sanctioned by Augsburg in 1613.

³⁰ ARSI, Opp. NN 17: *Xarope de Coral/da Botica do Coll. da Bahia*, 489-90; *Tintura de Coral/do Ir. Boticario Manoel de Carvalho*, 391-392; *Agoa Anti-Venerea/de Madama Fouquet*, 5.

³¹ *Farse-la do seg. Modo*.

ingredients that are customarily ordered under a single name; ingredients that can be ordered without regard to quality; weights and measures; general rules for using medications; an index of allowable substitutions; an explication of alchemical symbols; an alphabetical index of dosages of both simples and compounds; and ending finally with a twenty-six page, unpaginated general index.³²

Despite the wealth of practical information provided in the recipes, appendices, and indices, the manuscript is not concerned with natural historical or cultural information pertaining to the ingredients, the appearance of the plants, or how they can be acquired in the field. Instead they are treated as standardized substances that can be ordered, or if need be substituted: extracts, resins, powders, tinctures, and syrups. Regionally derived ingredients certainly occur more frequently in recipes from the area: so that one is more likely to encounter opium and cinnamon in recipes from Macao. Nonetheless, both of these ingredients show up in a few formulas from Bahia, such as the renowned Brazilian theriac, suggesting that many of them circulated quite widely throughout the Portuguese Assistancy.

The early modern genre of 'books of secrets' long predated this eighteenth-century recipe book. These seemingly practical texts, which flourished in print form in the sixteenth and seventeenth centuries, were usually written in the vernacular, and often contain recipes, pragmatic instructions and advice, as in the case of the *Collections of various recipes*. As scholars have indicated, despite the name, they served to disseminate technological information both to the growing community of experimental practitioners and to a middle-class domestic readership.³³ As a manuscript compiled internally within the Order, the Jesuit Archive *Collection* manuscript differs from these printed books. The manuscript's Prologue, which begins on the page facing the *Sacred Heart* illustration, explicitly links the idea of 'secrecy' to the Jesuit order's financial security and the success of the mission enterprise:³⁴

³² ARSI, Opp. NN 17: synonyms, equivalences, doses, 507-519; ingredients by effect, 522; single name, 538-541; without regard to quality, 545-548; weights and measures, 551-554; rules for using, 555-560; allowable substitutions, 563-569; alchemical symbols, 579-589; index of dosages, 587-609.

³³ William Eamon, *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture*, Princeton: Princeton University Press, 1994; Tara Nummedal, 'Practical Alchemy and Commercial Exchange in the Holy Roman Empire', in Pamela Smith and Paula Findlen, eds, *Merchants and Marvels: Commerce, Science and Art in Early Modern Europe*, New York: Routledge, 2002, 201-222; and William Eamon, 'How to Read Books of Secrets', in Elaine Leong and Alisha Rankin, eds, *Secrets and Knowledge in Medicine and Science*, Farnham and Burlington: Ashgate, 2011, 23-46.

³⁴ The 'secrecy' of the manuscript's information can be best understood within the context of the Order's global communication networks and record-keeping policies, as well as systematic politics for writing, translating, editing and publishing information. Markus Friedrich, *Der lange Arms Roms? Globale Verwaltung und Kommunikation im Jesuitenorden 1540-1773*, Frankfurt: Campus Verlag GMBH, 2011.

PROLOGUE FOR THE READER:

Friend, and dear Reader, I would not have written this collection of secret recipes from the new Pharmacies except to prevent these fine secrets from being lost. But these should not be put into everybody's hands. As you well know, once they are revealed, even if they are handed from one Pharmacy to another, they lose all their value. But, on the contrary, if any experimental recipe is kept in secret, [customers] hold them in such high regard and esteem that fame and profit accrue to the Pharmacy to which it belongs. For which reason, I beg of you to be camel-like and scrupulous in not revealing anything of these secrets.³⁵

The unknown compiler thus stresses the value and necessity of secrecy in keeping these Jesuit recipes within the readership of the Order. Yet, the comment concerning the dangers of allowing a given recipe to be shared even among Jesuit pharmacies would seem to be at odds with the purpose of assembling the collection in the first place, which was to make the recipes available to pharmacists throughout the Lusitaniae Assistancy.

The economic motivations of creating and protecting particular recipes is particularly clear in the case of *Brazilian Theriac*, the most complex compound in the volume, which contains some eighty ingredients in comparison to Roman theriac's mere sixty-four. This is the recipe that has garnered the most attention by historians of medicine, most recently Timothy Walker, who has noted that Brazilian theriac was second only to cacao as the largest grossing Brazilian revenue source for the Jesuit Order in the eighteenth century.³⁶ Theriacs had a long and storied history, dating back legendarily to King Mithradates VI of Pontus and to Andromachus, the court physician of Emperor Nero, serving in both cases as protection against assassination by poisoning. Extremely popular in the early-modern period as an antidote to poisons and venomous bites, as well as a general panacea, recipes for theriacs were jealously guarded trade secrets with Venetian and Roman (Jesuit) recipes among the most highly regarded. Brazil, with its profusion of indigenous *materia medica* on the one hand, and poisonous snakes and insects on the other, was the ideal place to develop an alternative recipe. In the language of the recipe itself:

³⁵ ARSI, Opp NN 17, Prologue: 'Amigo, e carissimo Leitor, não fiz esta coleção de Receitas particulares das novas Boticas, senão para que se não perdessem tão bons segredos, e estas não andassem espalhados por todas as mãos; pois bem sabes, que revelados elles, ainda que seja de tua Botica para outra, perdem toda a sua estimação: e que pelo contrario o mesmo lhe estar em segredo qualquer Receita experimentada, que fazerem della todos [tao] grande apreço e estima com fama, e lucros consideravel da Botica, a que pertence. Pelo que [peço-se] ja sejas muito acamellada, e escrupuloso em não reveler algo destes segredos...'

³⁶ The Brazilian Theriac recipe has been commented upon by Leite, *Artes e Ofícios*, 88; Anagnostou, 'Mission und Heilunde', 284-285; and Walker, 'The Medicines Trade', 418.

This is the celebrated Brazilian theriac, or [theriac] from Brazil, and is so stupendous, for many maladies, that they have continued to experiment, and from these experimenting, I will confess — [based] on the real experience that I have had from all four parts of the world, and having practiced in all of them the rarity of applying these remedies — I tell you that among all the theriacs except the first, this is the most efficacious.³⁷

It serves against any poisonous drink, even if [made] from cold herbs, and against venoms, and for bites of various types of snakes and other noxious animals; two eighths by weight dissolved in warm wine, or in anything potable, to be taken orally...until you feel relieved of the malady.³⁸

Brazilian Theriac is an antidote, or panacea, compounded in imitation of the *Theriaks of Rome* and of *Venice*, from various plants, roots, herbs, and medicines from Brazil, which nature endowed with all her excellent virtues. Each by itself could serve in place of *European Theriac*. Indeed with some of the roots out of which this antidote is compounded you can cure the Brazis [i.e. natives of Brazil] of any poison, and the bites of venomous animals, as well as of other diverse illnesses, only with things you chew. And many years of experience have shown that it is, if not better than *European Theriac*, at least not inferior in some cases. And many Professors of Medicine should only use this, because there are instances in which it is the more potent [medicament].³⁹

³⁷ 'Este é celeberrima tiriaga Brasileira, ou do Brasil, e tão estupenda para tantaz enfermidades, como continuam[se] de tem experimentado, e de este experimentando, e eu confeçar a verdade pela experiencia, que tenho de todaz az quarto partez do mundo, e exercitando em todaz ellaz a raridade, de applicar algunz remedioz, digo que daz tiriagaz a q[ue] entre todaz az outraz tem a primaria, poez é, a q[ue] entre todaz ellaz obra maiz promptam[se] e com maiz efficacia...' ARSI, Opp NN 17, 406.

³⁸ 'Serve contra qualquer bebida de veneno, ainda q[ue] seja de ervas frias, e venenosas, e p[ar]a mordeduras de qualquer qualid[ad]e de cobras, e outros animais peconcentos, tomando pella boca o pezo de sua a lhe duas oitavas desfeita em vinho caldo, ou em qualquer couza potavel ... a lhe sentir aliviado o enfermo....' ARSI, Opp NN 17, 408-409.

³⁹ 'A Triaga Brasilica é um Antidoto, ou Panacêa composta à imitação da Triaga de Roma, e de Veneza; de varias plantas, raizes, ervas, e drogas do Brasil, q[ue] a natureza dotou de tão excellentes virtudes, q[ue] cada sua por si só pode server em lugar de Triaga de Europa; pois com algumas das raizes, de q[ue] se compoem este Antidoto, se curão nos Brazis de qualquer peçonha, e mordedura de animais venenosos, como tambem de outras varias enfermidad[ades], só com mastigallas; e a experiencia tem mostrado hã tantos annos p[ar]a câ, q[ue] se não é melhor q[ue] a Triaga da Europa, ao menos não lhe se inferior em cousa alguma; e m[uitos] Professores de Medicina só uzavão desta, por ser a que nas occaziones lhe obrava mais promptam[se]. ARSI, Opp NN 17, 408-409.

Brazilian Theriac thus developed out of a dual economic necessity: demand was high, importing European theriacs was impractical (or even forbidden), and, in this context, much money could be made. Given the economic value of theriacs in particular, and pharmaceuticals in general, the desire to record the recipes and the urge that they not be shared is understandable.

Despite the length and intricacy of the recipe, and the assurances about the individual ingredients and antitoxins, the actual ingredients are not discussed in any form. The entry of each substance in the ingredient list is an informational reference to a standardized commodity. Though the actual medical practice of procuring, compounding, prescribing, and delivering medications unquestionably constituted a highly developed knowledge system to which this manuscript pertains, it is important here to recognize the implications of treating the *materia medica* in an informationally abbreviated manner. The *Collection of various recipes* is a by-product of a bureaucratic system, as indeed is any institutional inventory. Each Jesuit college required a pharmacy as part of its operational apparatus, to manage the health of the residents and local population, and, perhaps equally critical, to generate a profitable revenue stream. In order to be efficiently disseminated within a globally distributed network such as that of the Portuguese Assistancy, technical information, including the production of medicines, had to be standardized and systematized. In the case of medicinal recipes, this meant stripping away of what, for purposes of mixing ointments or compounding theriacs, was extraneous local or scholarly knowledge. Though undoubtedly mission pharmacists and local healers knew considerably more about particular plants than the *Collection* contains, this manuscript speaks to a kind of conceptual pre-packaging, a reduction or stripping away of local knowledge, and a substitution of what amounts to the labels one would find on jars and boxes in an apothecary's shop: oil of *pindaiba*, salts of tobacco, Brazilian balm, opium.

There is an analogue between labeling of this kind as a form of conceptual container and the production of beautiful storage jars as a form of display (Fig. 6). Theriac jars like this one were common in apothecaries throughout the early modern world. Called *albarellos*, elaborately decorated jars made of majolica pottery held simples and compounds and were arranged in display cases for the benefit of customers. Usually standardized in size to around seven inches tall for easy shelving, these jars were produced in large sets with uniform decorative motifs for display purposes. In this particular theriac jar of 1641, from the Science Museum of London, grotesques and putti ornament the shoulder and base, both of which are fitted with small, handle-like protrusions for ease of handling. The Jesuit



Figure 6 Albarello Jar for Theriac, 1641, majolica. Science Museum, London.

monogram is prominently displayed in the center of the main corpus of the jar (an alternative brand symbol to the *Sacred Heart* used as an introductory image to the *Collection of various recipes*) that would have been repeated on every jar in the series. Even more prominently, the name of the medication is emblazoned in large block capital letters across an open white field.

As beautiful as it may be, the theriac *albarello* is undeniably less conducive to extensive art historical formal analysis and iconographic interpretation than is Eckhout's *Mameluca*. Both objects, however, are products of their respective contexts, the Jesuit mission system and pharmaceutical industry on the one hand, and Holland's colonial and scientific ambitions on the other. A quick search in any library catalog or on the internet will reveal that art historians and other scholars have certainly gravitated in far greater numbers (relatively speaking) to studying Eckhout and Dutch painting than to looking at theriac jars and majolica. There is some justice in comparing this to the texts under discussion, although the analogy certainly has its limits. The Piso and Marcgraf book, which has woodcut illustrations on virtually every page and extensive accounts of hundreds of plants and animals,

has provided fertile ground for scholarly research in a variety of fields, art history included, while exceedingly few scholars have looked at the *Collection of various recipes*. Nevertheless, as I hope to have shown, the recipe manuscript's seemingly less informationally dense quality itself reveals something important about the systems that lay behind its production. Scholars of the early-modern world and earlier periods, as well as those who work in colonial studies, routinely face the challenges of lost, impartial, or frustratingly laconic sources. My point is not that we should make a virtue of necessity when working with such materials, but that we should understand the information density of any catalogue to be itself a rich source of insight.

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